

roadway geometry, receptor distance, operating speed and traffic volumes. Input parameters necessary to run TNM include detailed roadway geometry, receptor locations, topographic ground characteristics, shielding and traffic data. Within the PSA, the propagation path between the noise-sensitive sites and the proposed roadway and bridge improvements is primarily soft, with the default ground type characterized as lawn. Large areas of pavement (commercial property, parking lots) are also included in the model where they may affect the propagation path. The boundaries of areas with significant dense, evergreen vegetation were modeled as tree zones. The preliminary proposed highway design was used to develop roadway geometry input in the TNM model. The roadway geometry and receptor locations were evaluated in the field and mapped in state-plane coordinates using AutoCAD and April 2007 aerial photography. Non-vehicular traffic noise sources, such as aircraft, trains and construction activities, are not included in the TNM modeling.

Consistent with FHWA policy, noise level predictions are made for the traffic characteristics that yield the worst hourly-traffic noise on a regular basis. The worst hourly-traffic noise volume is based on the summer weekend demand volumes. The design year for the project is 2030. Both the AM and PM demand volumes were used for future (2030) conditions on US 64. Traffic predictions showed that the demand volume increases from 2006 existing conditions to 2030 were substantial for most segments. Roadway noise propagation depends on vehicle type, traffic volume, and traffic speed. Higher traffic volume does not necessarily contribute to higher traffic noise. Noise may be relatively lower when the general traffic speed decreases because the traffic volume cannot be accommodated by the roadway and impedes free-flow. Comparing the AM and PM demand volumes evaluated the worst hourly-traffic noise condition in this case.

Noise from existing traffic, from traffic in 2030 (with the No-Build Alternative), and from traffic in 2030 with the project alternatives was modeled assuming three vehicle classifications: cars (all vehicles with two axles and four tires), medium trucks (all cargo vehicles with two axles and six tires), and heavy trucks (all cargo vehicles with three or more axles). Assessment of traffic noise impacts requires the following three comparisons:

- The change in noise levels from existing conditions to future conditions with the proposed project and whether that difference is substantial
- The difference in future noise levels with and without the project
- Whether noise levels with the proposed project exceed the FHWA's NAC.

The FHWA's NAC for different land uses and the definition of what constitutes a substantial increase are provided in Section 3.8.2 of this DEIS.

4.8.2 Noise Sensitive Receptors

The noise study is based on the number and location of existing noise-sensitive sites in the PSA. A noise-sensitive site is any property (owner-occupied, rented or leased) where human activity occurs (typically outdoors) and where a lowered noise level is of benefit. To identify the noise-sensitive sites that may be exposed to noise levels that approach or